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International Bureau



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PCT

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WO 01/23664 A1

(51) International Patent Classification⁷: D06P 5/00, (74) Agent: WEINER, Marc, S.; Birch, Stewart, Kolasch & B41M 5/035, D06Q 1/12, B44C 1/17 Birch, LLP, P.O. Box 747, Falls Church, VA 22040-0747 (US).

(21) International Application Number: PCT/US00/26796

(22) International Filing Date:
29 September 2000 (29.09.2000)

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(26) Publication Language: English

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60/156,593 29 September 1999 (29.09.1999) US

(71) Applicant (for all designated States except US): FOTO-WEAR, INC. [US/US]; 101 Pocono Drive, Milford, PA 18337 (US).

(72) Inventors; and

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(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— With international search report.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 01/23664 A1

(54) Title: DYE SUBLIMATION THERMAL TRANSFER PAPER AND TRANSFER METHOD

(57) Abstract: An image transfer sheet is provided which comprises a support, a barrier layer, a dye sublimation ink layer and a polyester layer; wherein the image transfer sheet exhibits cold peel, warm peel and hot peel properties when transferred. A method for transferring an image to a receptor element using the image transfer sheet is also provided. More specifically, the invention relates to an image transfer sheet which can be applied to a receptor element, such as cotton or cotton/polyester blend fabrics or the like.

PATENT COOPERATION TREATY

From the
 'INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

WEINER, Marc S.
 BIRCH, STEWART, KOLASCH & BIRCH LLP
 P.O. Box 747
 Falls Church, VA 22040-0747
 ETATS-UNIS D'AMERIQUE

short
IPL
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NOTIFICATION OF TRANSMITTAL OF
 THE INTERNATIONAL PRELIMINARY
 EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing (day/month/year)	20.12.2001
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Applicant's or agent's file reference 0175-0285FPC	IMPORTANT NOTIFICATION	
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International application No. PCT/US00/26796	International filing date (day/month/year) 29/09/2000	Priority date (day/month/year) 29/09/1999
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Applicant FOTO-WEAR, INC. et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/	Authorized officer
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European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Fuerbass, C
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Tel. +49 89 2399-8132



TENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT
(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 0175-0285FPC	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/US00/26796	International filing date (day/month/year) 29/09/2000	Priority date (day/month/year) 29/09/1999
International Patent Classification (IPC) or national classification and IPC D06P5/00		
Applicant FOTO-WEAR, INC. et al.		
<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 8 sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of sheets.</p>		
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input checked="" type="checkbox"/> Certain defects in the international application VIII <input checked="" type="checkbox"/> Certain observations on the international application 		

Date of submission of the demand 26/04/2001	Date of completion of this report 20.12.2001
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Nissen, V Telephone No. +49 89 2399 8619



PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 0175-0285F.PC	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US 00/ 26796	International filing date (day/month/year) 29/09/2000	(Earliest) Priority Date (day/month/year) 29/09/1999
Applicant FOTO-WEAR, INC. et al.		
<p>This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.</p> <p>This International Search Report consists of a total of 02 sheets. <input checked="" type="checkbox"/> It is also accompanied by a copy of each prior art document cited in this report.</p>		
<p>1. Basis of the report</p> <p>a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.</p> <p><input type="checkbox"/> the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).</p> <p>b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing :</p> <p><input type="checkbox"/> contained in the international application in written form.</p> <p><input type="checkbox"/> filed together with the international application in computer readable form.</p> <p><input type="checkbox"/> furnished subsequently to this Authority in written form.</p> <p><input type="checkbox"/> furnished subsequently to this Authority in computer readable form.</p> <p><input type="checkbox"/> the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.</p> <p><input type="checkbox"/> the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished</p> <p>2. <input type="checkbox"/> Certain claims were found unsearchable (See Box I).</p> <p>3. <input type="checkbox"/> Unity of invention is lacking (see Box II).</p> <p>4. With regard to the title,</p> <p><input checked="" type="checkbox"/> the text is approved as submitted by the applicant.</p> <p><input type="checkbox"/> the text has been established by this Authority to read as follows:</p> <p>5. With regard to the abstract,</p> <p><input checked="" type="checkbox"/> the text is approved as submitted by the applicant.</p> <p><input type="checkbox"/> the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.</p> <p>6. The figure of the drawings to be published with the abstract is Figure No. ---</p> <p><input type="checkbox"/> as suggested by the applicant.</p> <p><input type="checkbox"/> because the applicant failed to suggest a figure.</p> <p><input type="checkbox"/> because this figure better characterizes the invention.</p> <p><input type="checkbox"/> None of the figures.</p>		

INTERNATIONAL SEARCH REPORT

International Application No

PC [REDACTED] 00/26796

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 D06P5/00 B41M5/035 D06Q1/12 B44C1/17

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 D06P B41M D06Q B44C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

WPI Data, PAJ, EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5 741 387 A (COLEMAN KENNETH R) 21 April 1998 (1998-04-21) cited in the application column 6, line 16 -column 7, line 4; claims ---	1-12, 18-22
Y	EP 0 351 085 A (BRANDYWINE MOTIFS LTD) 17 January 1990 (1990-01-17) the whole document ---	1-12, 18-22
A	GB 2 084 931 A (HELIOME LTD) 21 April 1982 (1982-04-21) the whole document ---	1-22
A	GB 2 147 614 A (PORTER KENNETH) 15 May 1985 (1985-05-15) the whole document -----	1-22

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

19 December 2000

Date of mailing of the international search report

28/12/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl.
Fax: (+31-70) 340-3016

Authorized officer

Blas, V

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 00/26796

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
US 5741387 A	21-04-1998	NONE		
EP 0351085 A	17-01-1990	DK	311689 A	25-12-1989
		GB	2220008 A,B	28-12-1989
		PT	90954 A,B	29-12-1989
GB 2084931 A	21-04-1982	NONE		
GB 2147614 A	15-05-1985	NONE		

PENT COOPERATION TREA

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF ELECTION
(PCT Rule 61.2)

Date of mailing (day/month/year) 13 July 2001 (13.07.01)	To: Commissioner US Department of Commerce United States Patent and Trademark Office, PCT 2011 South Clark Place Room CP2/5C24 Arlington, VA 22202 ETATS-UNIS D'AMERIQUE in its capacity as elected Office
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International application No. PCT/US00/26796	Applicant's or agent's file reference 0175-0285FPC
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International filing date (day/month/year) 29 September 2000 (29.09.00)	Priority date (day/month/year) 29 September 1999 (29.09.99)
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Applicant

HARE, Donald, S. et al

1. The designated Office is hereby notified of its election made:

in the demand filed with the International Preliminary Examining Authority on:

26 April 2001 (26.04.01)

in a notice effecting later election filed with the International Bureau on:

2. The election was

was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer
---	--------------------

Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38
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RECEIVED - 1

FEB - 5 2001

B.S.K.B., LLP

PCT

**NOTIFICATION CONCERNING
SUBMISSION OR TRANSMITTAL
OF PRIORITY DOCUMENT**

(PCT Administrative Instructions, Section 411)

From the INTERNATIONAL BUREAU

To:

WEINER, Marc, S.
 Birch, Stewart, Kolasch
 & Birch, LLP
 P.o. Box 747
 Falls Church, VA 22040-0747
 ETATS-UNIS D'AMERIQUE

Date of mailing (day/month/year) 23 January 2001 (23.01.01)	
Applicant's or agent's file reference 0175-0285FPC	IMPORTANT NOTIFICATION
International application No. PCT/US00/26796	International filing date (day/month/year) 29 September 2000 (29.09.00)
International publication date (day/month/year) Not yet published	Priority date (day/month/year) 29 September 1999 (29.09.99)
Applicant FOTO-WEAR, INC. et al	

1. The applicant is hereby notified of the date of receipt (except where the letters "NR" appear in the right-hand column) by the International Bureau of the priority document(s) relating to the earlier application(s) indicated below. Unless otherwise indicated by an asterisk appearing next to a date of receipt, or by the letters "NR", in the right-hand column, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
2. This updates and replaces any previously issued notification concerning submission or transmittal of priority documents.
3. An asterisk(*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b). In such a case, **the attention of the applicant is directed to Rule 17.1(c)** which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
4. The letters "NR" appearing in the right-hand column denote a priority document which was not received by the International Bureau or which the applicant did not request the receiving Office to prepare and transmit to the International Bureau, as provided by Rule 17.1(a) or (b), respectively. In such a case, **the attention of the applicant is directed to Rule 17.1(c)** which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

<u>Priority date</u>	<u>Priority application No.</u>	<u>Country or regional Office or PCT receiving Office</u>	<u>Date of receipt of priority document</u>
29 Sept 1999 (29.09.99)	60/156,593	US	12 Janu 2001 (12.01.01)

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 740.14.35	Authorized officer Somsak Thiphakesone Telephone No. (41-22) 338.83.38
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PATENT COOPERATION TREATY

APR 16 2001

PCT

NOTICE INFORMING THE APPLICANT OF THE
COMMUNICATION OF THE INTERNATIONAL
APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

Date of mailing (day/month/year) 05 April 2001 (05.04.01)			
Applicant's or agent's file reference 0175-0285FPC		IMPORTANT NOTICE	
International application No. PCT/US00/26796	International filing date (day/month/year) 29 September 2000 (29.09.00)	Priority date (day/month/year) 29 September 1999 (29.09.99)	
Applicant FOTO-WEAR, INC. et al			

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:
AU,KP,KR,US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:
AE,AG,AL,AM,AP,AT,AZ,BA,BB,BG,BR,BY,BZ,CA,CH,CN,CR,CU,CZ,DE,DK,DM,DZ,EA,EE,EP,ES,
FI,GB,GD,GE,GH,GM,HR,HU,ID,IL,IN,IS,JP,KE,KG,KZ,LC,LK,LR,LS,LT,LU,LV,MA,MD,MG,MK,
MN,MW,MX,MZ,NO,NZ,OA,PL,PT,RO,RU,SD,SE,SG,SI,SK,SL,TJ,TM,TR,TT,TZ,UA,UG,UZ,VN,YU,
The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).
3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on
05 April 2001 (05.04.01) under No. WO 01/23664

REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a demand for international preliminary examination must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))

If the applicant wishes to proceed with the international application in the national phase, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 740.14.35	Authorized officer J. Zahra Telephone No. (41-22) 338.83.38
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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 0175-0285FPC	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/US00/26796	International filing date (day/month/year) 29/09/2000	Priority date (day/month/year) 29/09/1999

International Patent Classification (IPC) or national classification and IPC
D06P5/00

Applicant FOTO-WEAR, INC. et al.

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 8 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I Basis of the report
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

Date of submission of the demand 26/04/2001	Date of completion of this report 20.12.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Nissen, V Telephone No. +49 89 2399 8619



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US00/26796

- the drawings, sheets:
5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):
(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)
6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims 1-22
	No:	Claims
Inventive step (IS)	Yes:	Claims
	No:	Claims 1-22

Industrial applicability (IA) Yes: Claims 1-22
No: Claims

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

Re Item VIII Certain observations on th international application

1. It is obviously an essential feature of the present invention that it employs a (thermoplastic) polyester layer as covering for the sublimation dye image on the transfer sheet and eventually as (hot melt) binder for the image on the substrate [see in particular page 3, lines 23-26].
 - 1.1 In the description it is stated that any polyester can be used and that the layer can "include" polyacrylates and/or vinyl acetates [page 23, lines 25-28].
 - 1.2 It is not found plausible that any amount of any polyester in combination with any additives (as implicitly claimed) will in fact serve the intended purpose (Art. 33(3) and R. 6(3) PCT) [page 3, lines 23-26]. From the description it emanates that the polyester and the polyester composition must fulfill certain criteria such as having certain melting points in order to allow for the desired result. The claims are thus found to be unjustified broad and to lack sufficient support (Art. 5, 6 and R. 6.3(a) PCT).
 - 1.3 Commonly "polyester" is interpreted as a material comprising a major amount of polyester resin (typically formed by polycondensation of (di)carboxylic acids with (di)hydroxyl alcohols).
 - 1.4 However, the present description seems to induce doubt as to what the applicant would in fact consider as constituting a "polyester" or a "polyester layer" cf. the use of said terms in the claims. For instance, on page 22, line 18ff. it is stated that the polyester layer can comprise (a) a polyester or polyester/copolymer blend or acrylic dispersion, (b) an elastomeric emulsion, (c) water and (d) a plasticizer. As "acrylics" not necessarily are to be classified as "polyester" (although acrylic acid in theory can be used to form such), it would appear that the polyester layer does not need to contain any polyester in the classical sense (i.e. with the ester bonds sequentially placed in the polymer's main chain). This introduces doubt as to the meaning and scope of the claims (Art. 6 PCT). See also page 23, line 29 - page 24, line 5.
 - 1.5 Judging from the examples (e.g. example 2 where PMMA is mentioned as a

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US00/26796

"polyester") it could be assumed the applicant considers (methyl) esterified poly (acrylic) acids as being polyesters. This seems, however, not to concur with the usual interpretation of the term (Art. 6 PCT).

- 1.6 Moreover, on page 22, line 21ff. it is stated that the acrylic dispersion is an ethylene acrylic acid dispersion which can be present in an amount of 46-90 weight% (see also examples 6 and 7). Ethylene acrylic acid dispersions are not considered to be (or to form) polyesters. This introduces serious doubt as to the meaning and scope of the claims (Art. 6 PCT).
- 1.7 In fact it appears that no example supports the application of *classical* polyesters (Art. 6 PCT). Moreover, it could even be found that the application lacks sufficient disclosure for enabling the person skilled person to carry out the invention over the entire scope claimed (Art. 5 PCT).
- 1.8 It is also not entirely clear what the provision "the polyester layer does not comprise thermosetting materials" implies (Art. 6 PCT). It seems from the description that the composition can comprise at least cross-linked polymers, which could on the other hand be considered as constituting thermosetting materials (or at least thermoset materials).
- 1.9 Moreover, it is not absolutely clear what could be considered as being a sublimation dye. There seem to be no specific and unambiguous definition of the term (Art. 6 PCT). It would appear that essentially any known dye could be used according to the invention [see page 21, lines 7-11].
2. The term "flexographic" as used in claim 3 appears to have no specific meaning and is thus unclear (Art. 6 PCT).
- 2.1 The expression "performance additives" as used in claim 16 has no specific meaning and is thus unclear (Art. 6 PCT).
- 2.2 Claim 20 does not limit the subject matter of claim 18 as no additional features are defined (Art. 6 PCT: Lack of conciseness).

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US00/26796

3. Taking the nature of the invention into consideration the present number of independent claims is considered to be excessive (R. 6.1(a) PCT) and should be reduced to a minimum number (without redundancy) comprising all essential features of the invention (R. 6.3(a) PCT) followed by a limited number of dependent claims defining the optional features of preferred embodiments (R. 6.4 PCT).
4. The applicant is informed that if the above mentioned objections under Section VIII are not satisfactorily overcome, an IPER making use of Section III (No opinion due to severe lack of clarity) is likely to be issued.

Re Item V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

- D1: US-A-5 741 387 (COLEMAN KENNETH R) 21 April 1998 (1998-04-21) cited in the application
D2: EP-A-0 351 085 (BRANDYWINE MOTIFS LTD) 17 January 1990 (1990-01- 17)

1. Insofar the present invention can be understood (see above section VIII) it pertains to various issues of ordinary transfer printing - that is; formation of a transfer sheet, the so formed sheet per se and the use of said sheet in transfer printing.
 - 1.1 The sheet is composed by a support covered with a barrier (release) layer which is printed with an image using sublimation dyes, which image is covered with a thermoplastic (polyester) adhesive layer (hot melt). The latter layer is working as a fixation/carrier means for the image when it has been transferred to a receiving substrate (e.g. T-Shirt).
2. D2 discloses a transfer printing sheet comprising a base layer (called substrate), an image which is printed with sublimation dye and a coating of a thermoplastic acrylic resin [page 2, line 30 - page 3, line 14]. Similarly seems to apply to

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documents US-A-4 914 079 and US-A-5 679 461 cited in the application.

- 2.1 The present invention thus differ over said prior art merely through the application of a barrier (release) layer placed between the support and the printed image.
- 2.2 However, such barriers and any advantages of employing such are very well known in the art of transfer printing. D1 for instance (and apparently documents US-A-4 555 436, US-A-4 927 709 and US-A-4 935 300 cited in the application) disclose(s) such use [column 4, lines 6-11].
- 2.3 D1 discloses a release layer comprising a polymer dispersion comprising for instance butadiene-styrene, acrylic resins or copolymers of vinyl acetate and ethylene [column 4, lines 13-63].
- 2.4 As no unexpected effect of using such known barrier/release layer in the context of the present invention is evident from the application, the subject matter of (essentially) independent claims 1, 2, 18, 19, 20 and 22 is not considered to involve an inventive step (Art. 33(3) PCT).
4. Dependent claims 2-17 and 21 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step, the reasons being as follows:
 - 4.1 In said claims only slight constructional change in the subject matter of the independent claims are defined and which come within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can readily be foreseen. Consequently, the subject-matter of said dependent claims lacks an inventive step (Art. 33(3) PCT).
 - 4.2 For instance claims 3-10 merely cites the commonly employed means in the art of transfer coating.
 - 4.3 Claims 11 and 12 merely cites known polymer dispersion for use in the barrier layer. There seems to be no particular implications of selecting the particular polymer defined in claim 13.

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- 4.4 Claims 14-17 merely states obvious and commonly known means employed in the adhesive coatings of the prior art.
- 4.5 Regarding claim 21 it is found obvious to "bundle" all items needed to carry out the transfer printing.
5. In view of the clarity issues and particular in the fact that each individual step/feature of the invention (and any technical effect linked to these) are known per se - and no unexpected combined effect is evident, it is at present not clear which part of the application could form basis for a new set of claims being both novel and inventive and which do not violate Art.s 6 and/or 34(2)(b) PCT.
6. Industrial applicability is, however, self-evident for the subject matter of all claims (Art. 33(4) PCT).

Re Item VII Certain defects in the international application

1. The unit "mils" does not appear to be internationally recognized (R. 10.1(d) PCT).

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EXAMINATION REPORT**

International application No. PCT/US00/26796

I. Basis of the report

1. With regard to the elements of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):
Description, pages:

1-43 as originally filed

Claims, No.:

1-22 as originally filed

Drawings, sheets:

1/1 as originally filed

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:

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- the drawings, sheets:
5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):
(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)
6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims 1-22
	No:	Claims
Inventive step (IS)	Yes:	Claims
	No:	Claims 1-22

Industrial applicability (IA) Yes: Claims 1-22
 No: Claims

**2. Citations and explanations
see separate sheet**

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/US00/26796

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-43 as originally filed

Claims, No.:

1-22 as originally filed

Drawings, sheets:

1/1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

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- contained in the international application in written form.
- filed together with the international application in computer readable form.
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- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:

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3. Taking the nature of the invention into consideration the present number of independent claims is considered to be excessive (R. 6.1(a) PCT) and should be reduced to a minimum number (without redundancy) comprising all essential features of the invention (R. 6.3(a) PCT) followed by a limited number of dependent claims defining the optional features of preferred embodiments (R. 6.4 PCT).
4. The applicant is informed that if the above mentioned objections under Section VIII are not satisfactorily overcome, an IPER making use of Section III (No opinion due to severe lack of clarity) is likely to be issued.

Re Item V

**Reasoned statement under Rule 66.2(a)(ii) with regard to novelty,
inventive step or industrial applicability; citations and
explanations supporting such statement**

D1: US-A-5 741 387 (COLEMAN KENNETH R) 21 April 1998 (1998-04-21) cited in the application

D2: EP-A-0 351 085 (BRANDYWINE MOTIFS LTD) 17 January 1990 (1990-01- 17)

1. Insofar the present invention can be understood (see above section VIII) it pertains to various issues of ordinary transfer printing - that is; formation of a transfer sheet, the so formed sheet per se and the use of said sheet in transfer printing.
 - 1.1 The sheet is composed by a support covered with a barrier (release) layer which is printed with an image using sublimation dyes, which image is covered with a thermoplastic (polyester) adhesive layer (hot melt). The latter layer is working as a fixation/carrier means for the image when it has been transferred to a receiving substrate (e.g. T-Shirt).
2. D2 discloses a transfer printing sheet comprising a base layer (called substrate), an image which is printed with sublimation dye and a coating of a thermoplastic acrylic resin [page 2, line 30 - page 3, line 14]. Similarly seems to apply to

Re Item VIII Certain observations on the international application

1. It is obviously an essential feature of the present invention that it employs a (thermoplastic) polyester layer as covering for the sublimation dye image on the transfer sheet and eventually as (hot melt) binder for the image on the substrate [see in particular page 3, lines 23-26].
 - 1.1 In the description it is stated that any polyester can be used and that the layer can "include" polyacrylates and/or vinyl acetates [page 23, lines 25-28].
 - 1.2 It is not found plausible that any amount of any polyester in combination with any additives (as implicitly claimed) will in fact serve the intended purpose (Art. 33(3) and R. 6(3) PCT) [page 3, lines 23-26]. From the description it emanates that the polyester and the polyester composition must fulfill certain criteria such as having certain melting points in order to allow for the desired result. The claims are thus found to be unjustified broad and to lack sufficient support (Art. 5, 6 and R. 6.3(a) PCT).
 - 1.3 Commonly "polyester" is interpreted as a material comprising a major amount of polyester resin (typically formed by polycondensation of (di)carboxylic acids with (di)hydroxyl alcohols).
 - 1.4 However, the present description seems to induce doubt as to what the applicant would in fact consider as constituting a "polyester" or a "polyester layer" cf. the use of said terms in the claims. For instance, on page 22, line 18ff. it is stated that the polyester layer can comprise (a) a polyester or polyester/copolymer blend or acrylic dispersion, (b) an elastomeric emulsion, (c) water and (d) a plasticizer. As "acrylics" not necessarily are to be classified as "polyester" (although acrylic acid in theory can be used to form such), it would appear that the polyester layer does not need to contain any polyester in the classical sense (i.e. with the ester bonds sequentially placed in the polymer's main chain). This introduces doubt as to the meaning and scope of the claims (Art. 6 PCT). See also page 23, line 29 - page 24, line 5.
 - 1.5 Judging from the examples (e.g. example 2 where PMMA is mentioned as a

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"polyester") it could be assumed the applicant considers (methyl) esterified poly (acrylic) acids as being polyesters. This seems, however, not to concur with the usual interpretation of the term (Art. 6 PCT).

- 1.6 Moreover, on page 22, line 21ff. it is stated that the acrylic dispersion is an ethylene acrylic acid dispersion which can be present in an amount of 46-90 weight% (see also examples 6 and 7). Ethylene acrylic acid dispersions are not considered to be (or to form) polyesters. This introduces serious doubt as to the meaning and scope of the claims (Art. 6 PCT).
- 1.7 In fact it appears that no example supports the application of *classical* polyesters (Art. 6 PCT). Moreover, it could even be found that the application lacks sufficient disclosure for enabling the person skilled person to carry out the invention over the entire scope claimed (Art. 5 PCT).
- 1.8 It is also not entirely clear what the provision "the polyester layer does not comprise thermosetting materials" implies (Art. 6 PCT). It seems from the description that the composition can comprise at least cross-linked polymers, which could on the other hand be considered as constituting thermosetting materials (or at least thermoset materials).
- 1.9 Moreover, it is not absolutely clear what could be considered as being a sublimation dye. There seem to be no specific and unambiguous definition of the term (Art. 6 PCT). It would appear that essentially any known dye could be used according to the invention [see page 21, lines 7-11].
2. The term "flexographic" as used in claim 3 appears to have no specific meaning and is thus unclear (Art. 6 PCT).
- 2.1 The expression "performance additives" as used in claim 16 has no specific meaning and is thus unclear (Art. 6 PCT).
- 2.2 Claim 20 does not limit the subject matter of claim 18 as no additional features are defined (Art. 6 PCT: Lack of conciseness).

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- 2.1 The present invention thus differ over said prior art merely through the application of a barrier (release) layer placed between the support and the printed image.
- 2.2 However, such barriers and any advantages of employing such are very well known in the art of transfer printing. D1 for instance (and apparently documents US-A-4 555 436, US-A-4 927 709 and US-A-4 935 300 cited in the application) disclose(s) such use [column 4, lines 6-11].
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4. Dependent claims 2-17 and 21 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step, the reasons being as follows:
 - 4.1 In said claims only slight constructional change in the subject matter of the independent claims are defined and which come within the scope of the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can readily be foreseen. Consequently, the subject-matter of said dependent claims lacks an inventive step (Art. 33(3) PCT).
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- 4.4 Claims 14-17 merely states obvious and commonly known means employed in the adhesive coatings of the prior art.
- 4.5 Regarding claim 21 it is found obvious to "bundle" all items needed to carry out the transfer printing.
5. In view of the clarity issues and particular in the fact that each individual step/feature of the invention (and any technical effect linked to these) are known per se - and no unexpected combined effect is evident, it is at present not clear which part of the application could form basis for a new set of claims being both novel and inventive and which do not violate Art.s 6 and/or 34(2)(b) PCT.
6. Industrial applicability is, however, self-evident for the subject matter of all claims (Art. 33(4) PCT).

Re Item VII Certain defects in the international application

1. The unit "mils" does not appear to be internationally recognized (R. 10.1(d) PCT).